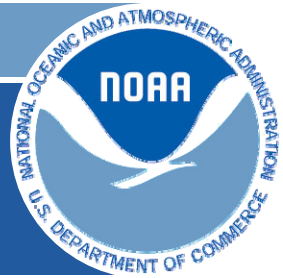


NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Review of NOAA GPM Activities



Rob Cifelli
NOAA OAR/ESRL/PSD
Boulder, CO

Outline

- Steering Group on Precipitation Measurement from Space (SGPMS)
- Review of 2nd Users Workshop on GPM
- PMM Science Team Activities
- Overview of 3rd Workshop Goals / Agenda

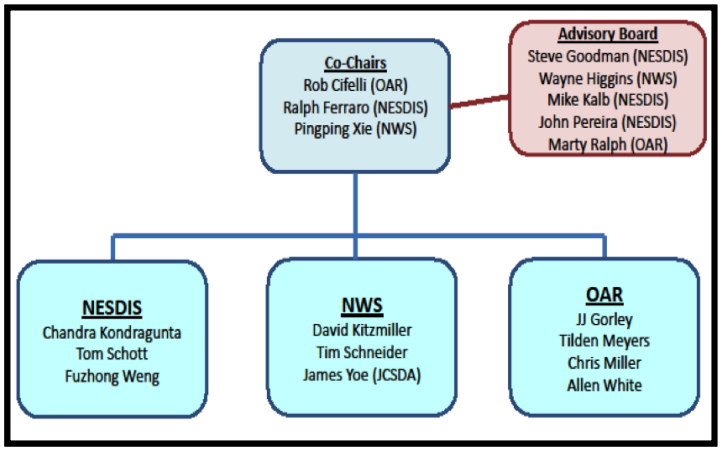
NOAA's Steering Group on Precipitation Measurement from Space (SGPMS)

Background:

- Outgrowth of 2007 NRC Report "*NOAA's Role in Space-based Precipitation Estimation and Application*"
- Enhance use of TRMM-GPM data in NOAA operations

SGPMS Vision: *Support NOAA's effort to deliver the best precipitation information to achieve both its Weather and Water and Climate goals*

SGPMS Mission: *Inform NOAA leadership and recommend R&D priorities across NOAA with regard to precipitation estimation from space*



Responsibilities

- Interact with NASA and NOAA leadership to help set R&D priorities and responsibilities across NOAA with regard to precipitation from space
- Educates users and gain stakeholder support
- Engages in budgeting and planning activities
- Provides oversight within NOAA on GPM related activities and prepares required documentation
  - Transition Plan, L1RD, NASA/NOAA MOU, User Workshops, NOAA Science Team project reviews etc.

2nd NOAA User Workshop on GPM (November 29 - December 1, 2011)



- Over 60 participants from NOAA, NASA, DoD, Academia and Private Sector
- Meeting format - Plenary sessions, Panelists /Working Groups focused on four main themes

WG1 : Enhancing R&D and Innovation of GPM-era data at NOAA

- NOAA Unique Products

WG2 : Accelerating GPM Data use at NOAA

- Existing testbeds? Or new infrastructure (e.g. proving ground)

WG3 : Data Fusion

- How to integrate GPM data into merged products (e.g Q2, MPE, CMORPH etc.)

WG3 : Data Delivery and Formats

- How to improve product processing and delivery to users at minimal data latency

Some Key 2nd Workshop Recommendations

- **NOAA needs to prepare immediately to exploit GPM era data and products:**
  - Data delivery and distribution
  - Research and Development
    - Continuity of operations from current sensors into GPM-era sensors
    - Climate applications and model verification
    - NWP assimilation and model verification
    - Data fusion and uncertainty estimation
    - NOAA unique products from GPM sensors
  - Accelerating the use of GPM data at NOAA through emerging Proving grounds and existing test-beds
    - Look to exploit activities under both GOES-R and JPSS Programs
    - Climate, Hydrometeorology, Hurricane, etc. test-beds

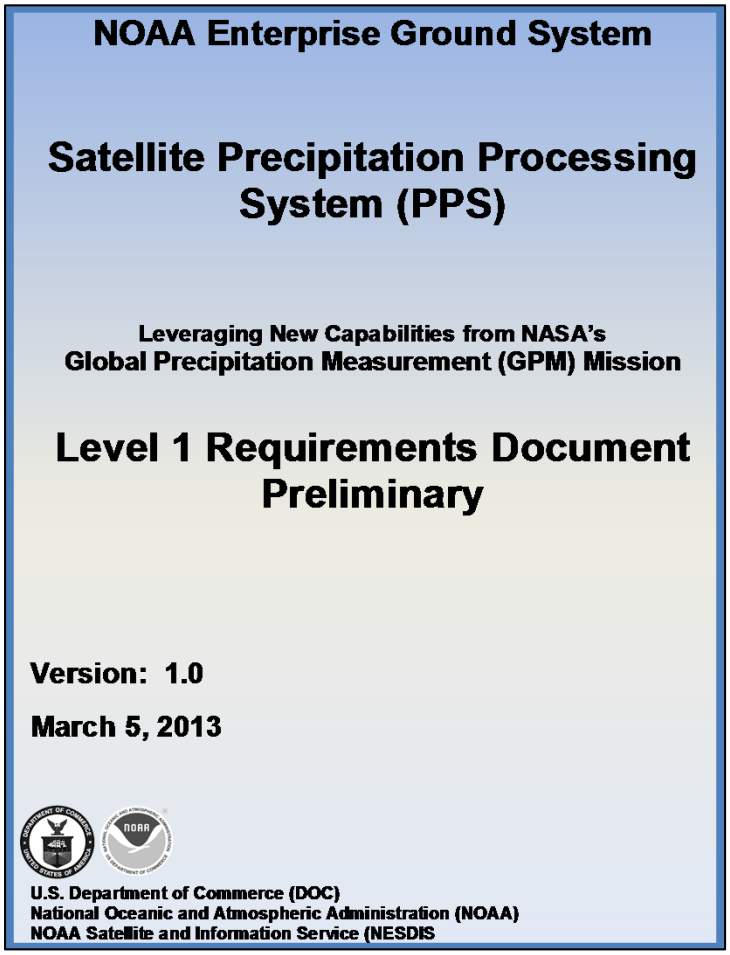
Follow-up to 2nd Workshop Recommendations

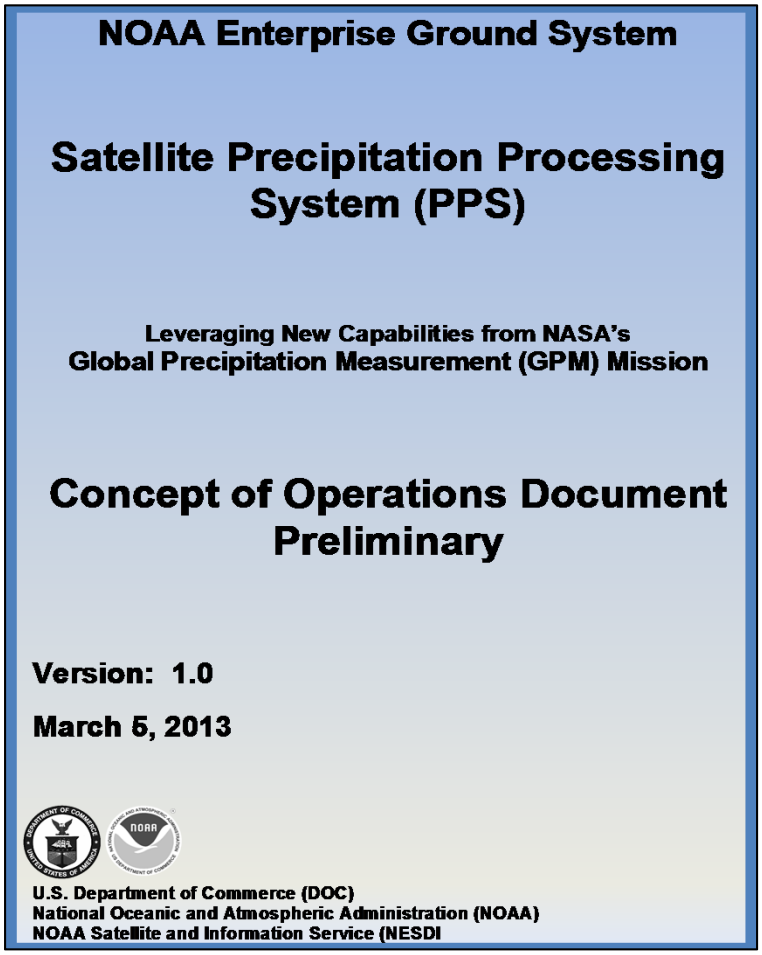
- A Tiger Team was formed to develop a GPM Level-1 Requirements Document (L1RD) and a Concept of Operations
  - Led by C. Kondragunta (NESDIS)

- ***Tiger Team Members:***
  - Bob Kuligowski
  - Brian Nelson
  - Chandra Kondragunta
  - Dan Mundell
  - David Hermreck
  - David Kitzmiller
  - James Yoe
  - James Heil
  - John Beven
  - Kevin Schrab
  - Limin Zhao
  - Michael Brennan
  - Miek Bodner
  - Mike Johnson
  - Pingping Xie
  - Ralph Ferraro
  - Richard Fulton
  - Rob Cifelli
  - Sheldon Kusselson
  - Sid Boukabara
  - Tom Schott
  - Yu Zhang

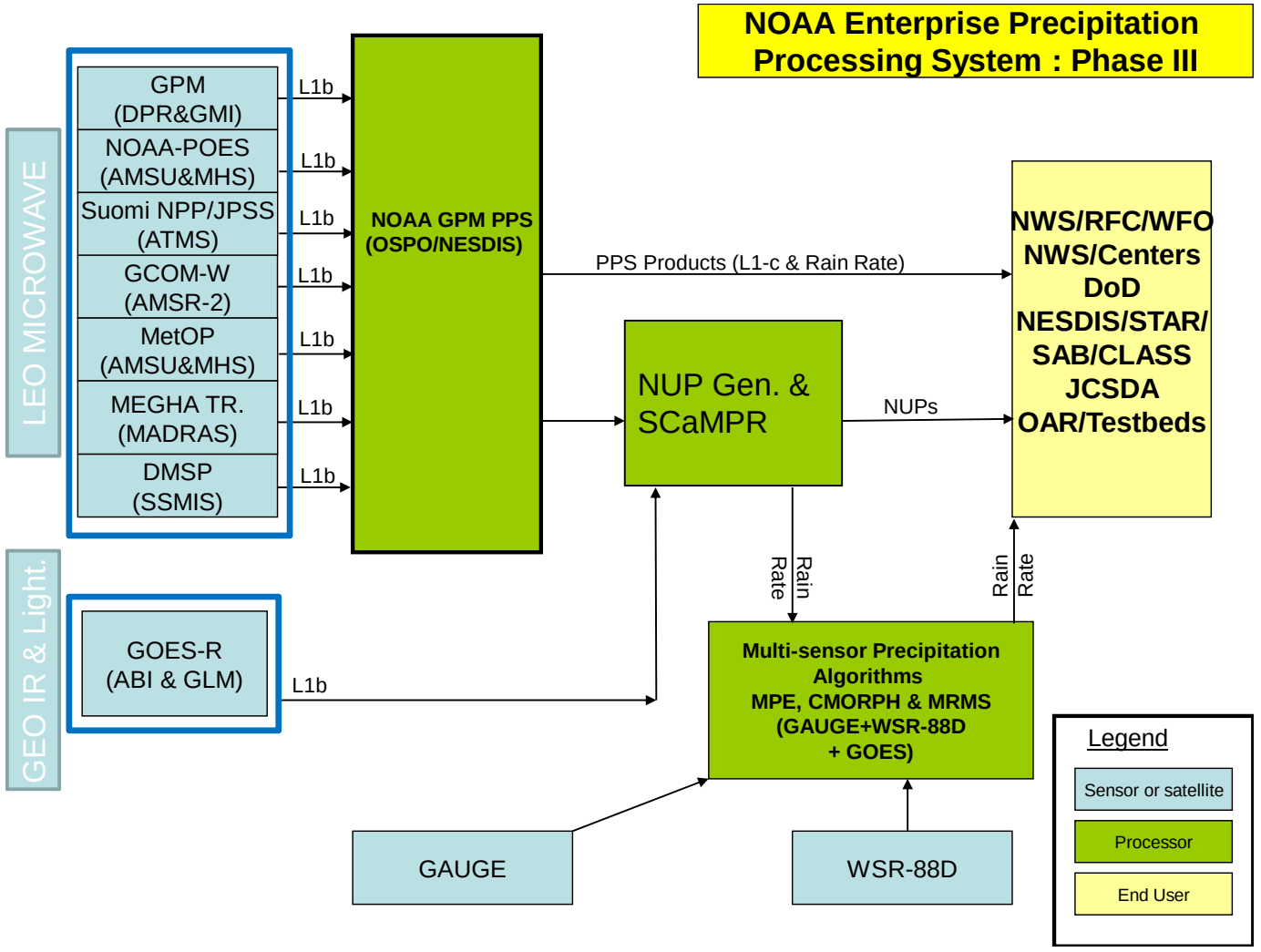
Follow-up on the 2nd Workshop Recommendations

- GPM PPS Level-1 Requirements and Concept of Operations documents were developed and currently undergoing management review (C. Kondragunta/NESDIS)



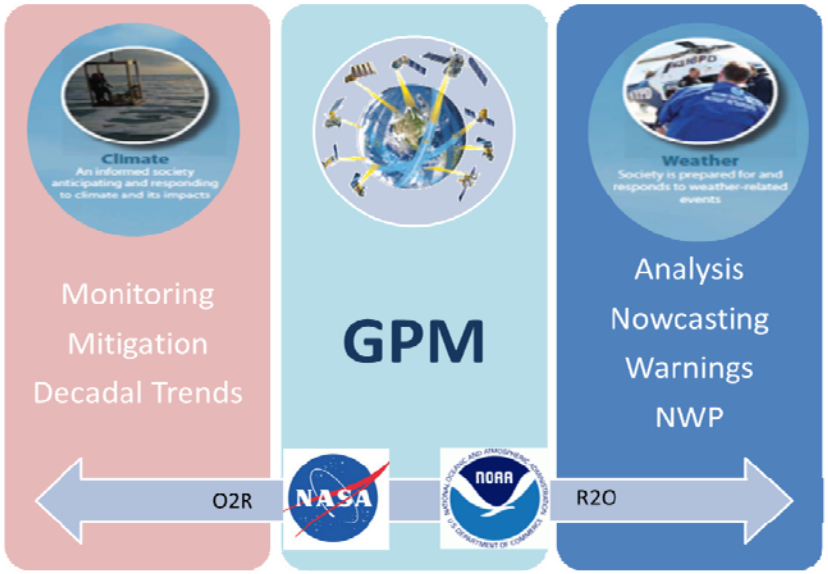


Proposed Enterprise Precipitation Processing in NOAA



NOAA Participation on NASA PMM Science Team

- **Nine NOAA PI's contributed to successful "Omnibus" no-cost to NASA proposal to ROSES2012**
  - **NESDIS, NWS, OAR**
  - **NOAA secured 60% funds in FY13**
    - **Some projects will be extended into 4th year**
- **Shows continued interest in GPM at NOAA**
  - **Four funders within NESDIS**
  - **Two funders within OAR**
  - **JCSDA funding**
  - **Future funders identified**



	PRIMARY NASA/ROSES GOALS			PRIMARY NOAA PROGRAMS			
NOAA Lead PI	Algo/prod. val & enhancement	Process Study & Model Development	Applications	Weather, Water, and Climate Applications	Satellite/ Risk Reduction	Testbeds & Proving Ground	NWP
R. Ferraro	X		X		X	X	
P. Xie	X		X	X	X	X	
S. Boukabara	X		X				X
F. Weng		X			X		X
P. Groisman	X			X			
JJ Gourley	X			X	X	X	
R. Cifelli			X	X		X	
Y. Zhang	X	X	X	X	X	X	
Y. Xie			X				X

NOAA Projects for PMM

- **NASA-NOAA Algorithm Synergy & NWP Impact Assessment In support of GPM**
  - *S. Boukabara (PI), K. Garrett, V. Tallapragada (co-PI), In-Hyuk Kwon*
- **NOAA GPM Proving Ground and Utilization for HMT-SEPS**
  - *R. Cifelli, S. Rudlosky, R. Ferraro, P. Xie*
- **Contributions to the MW-RE Precipitation over Land Algorithm**
  - *R. Ferraro, N-Y. Wang, H. Meng*
- **WiMerge: Research and Development of Unified CONUS 3-D Mosaics and QPE products**
  - *J. Gourley, Y. Zhang, P. Xie, D. Kitzmiller, B. Kuligowski*
- **Characterization of Precipitation Field in High Latitudes of the Northern Hemisphere for the Future Use with the GPM Mission Products for Hydrological & Climate Change Assessments**
  - *P. Groisman, D. Easterling, B. Nelson, D. Yang, V. Alexeev, et al.*
- **Calibration of GMI Sounding Channels and Global Detection of Radio Frequency Interference**
  - *Fuzhong Weng (NESDIS/STAR), Xiaolei Zou (FSU) and Tiger Yang (ESSIC/UMD)*
- **Pole-to-Pole CMORPH and Integrated Regional Precipitation Analyses**
  - *P.Xie and R.Joyce*
- **Analysis and Validation of GPM in LAPS Data Assimilation System**
  - Y. F. Xie, S. Albers, S. Gutman, D. Birkenheuer, H. L. Jiang, and Z. Toth
- **Contributions to GPM at NOAA NWS/OHD & NESDIS/STAR – Data Fusion and Applications**
  - *Y. Zhang, J. Gourley, R. Kuligowski, D. Kitzmiller, P. Xie*
- **Operational AMSU/MHS Snowfall Rates**
  - *H. Meng*

3rd User Workshop on GPM

- April 2nd – 4th
- Three major themes
  - NOAA GPM Proving Ground
  - NOAA GPM Research and Algorithm Development
  - Training and Outreach Needs and Goals
- Day 1: Plenary sessions
- Day 2: Working groups meet
- Day 3: Wrap up and next steps

Day 1 Agenda

1st Day - Apr 2nd

04/02/13	Topic	Speaker(s)	Organization
800 - 820 am	Registration/Sign In/Continental Breakfast		
	SESSION 1 - OVERVIEW (Chair - Chandra Kondragunta)		
820 - 825	Introductions, Welcome, Logistics, Goals, Format, etc.	R. Ferraro; A. Busalacchi	NESDIS & UMD
825 - 840	2nd Workshop Summary and Progress; NOAA PMM Project Summary	R. Cifelli	OAR
840 - 855	Importance of GPM from NESDIS Perspective	M. Haas	NESDIS
855 - 910	NOAA Keynote Speaker - GPM's Role at the NWS	L. Furgione	NWS
910 - 925	NOAA Keynote Speaker - GPM's Role at Hydrology Program	B. Choy	NWS/OHD
925 - 940	GPM Program Status	G. Skofronick-Jackson	NASA
940 - 955	GPM Ground System Status	E. Stocker	NASA
955 - 1010	GPM Outreach and Applications	D. Kirschbaum	NASA
1010 - 1030	**COFFEE BREAK + GROUP PHOTO**		
	SESSION 2- NOAA GPM Proving Grounds and Testbeds (Chair - Rob Cifelli)		
1030 -1035	Intro: Purpose of session: ongoing NOAA Proving Grounds: Purpose, links to testbeds, and stategies to accomplish R2O/O2R	R. Cifelli	OAR
1035 -1050	GOES-R Proving Ground	S. Goodman (TBC)	NESDIS
1050 -1105	JPSS Proving Ground	I. Guch	NESDIS
1105 - 1125	Hydrometeorology Testbed PSD / HPC	A. White /R. Cifelli / W. Hogsett	OAR / NWS
1125 - 1140	Climate Testbed CPC	M. Halpert/J. Huang	NWS/CPC
1140 - 1200	Discussion, summary and plans for the WG	Group	
1200 - 100 pm	**LUNCH**		
	SESSION 3- NOAA GPM Research and Algorithm Development (Chair - Yu Zhang)		
100 - 115	IWRSS and data fusion needs (summary from 2012 workshop)	Tim Schneider/D. Kitzmiller	OHD
115 - 130	NOAA Satellite Data Fusion	P. Xie/Kuligowski	NCEP/NESDI
130 - 145	GPM-Radar - Gauge Fusion via MRMS	J. Gourley/B. Rabin	OAR
145 - 200	Data blending via MPE/CMORPH	Y. Zhang/P. Xie	OHD/UTA
200 - 215	New fusion paradigms	V. Chandrasekar	CSU
215 - 230	Discussion - /common testbed/coordination and priorities/data sources	Group	
230 - 250	**COFFEE BREAK**		
	SESSION 4 - Outreach and Applications Needs and Goals (Chair - Stephen Mango)		
Hydrometeorology			
310 - 330	Hydromet, Hurricane, Snow/Alaska, NOHRSC, IWRSS?	Greg Waller/Greg Fall/David Kitzmiller	NWS RFCs/OHD
330 - 350	NHC uses of GPM era data and products	M. Brennan	NWS/NHC
350 - 410	Outreach and Training (COMET)	Brian Motta	
	SESSION 5 - Summary, Working Group Formation and Initial WG Tag Ups		
415 - 500	Session Introduction		
500 pm	**WORKSHOP ENDS FOR THE DAY**		